Intelligent Integration Interface
User Manual

Clinical System Integration for Numed Healthcare Products

Revision: 3.1

LICENCE AGREEMENT

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The Intelligent Integration Interface (I^3) software accesses patient data from the Clinical Server through the clinical system provider's approved Application Programming Interface. It is the user's responsibility to ensure the patient data as displayed by the I^3 software is the correct information for the patient undergoing consultation.

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Intelligent Integration Interface
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Introduction

The Intelligent Integration Interface (I^3) is a piece of software that acts as a link between the clinical system and a range of diagnostic products supplied by Numed Healthcare.

I^3 is a Java based application designed to update automatically over the Internet, so updates and bug fixes can be automatically deployed quickly and efficiently with little or no user interaction. The software checks for an available update the first time it is used each day. A 'Check for Software Updates' button is available in the Settings screen which forces a check for a new version from the update server.

Pre-requisites

The following are required before installation and use of the I^3 software.

- Windows XP-SP2 or Windows 7 Operating System
- For use with the GE Healthcare ECG machines, Cardiosoft v6.71 or later must be installed and correctly configured.
- For use with the QRS Diagnostic ECG machines, CardioView v5 or later must be installed and correctly configured.
- For use with the IEM Mobil-o-Graph BP Monitors, HMS-CS v4.71 or later must be installed and correctly configured.
- For use with the MedChip SpiroConnect Spirometer, SpiroConnect Data Manager software version 1.0 or later must be installed and correctly configured.

Clinical System Compatibility

I^3 is currently compatible and accredited for use with the following clinical systems:

- EMIS LV (excluding Spirometry module)
- EMIS PCS
- EMIS WEB
- TPP SystmOne
- InPS Vision (LAN and Enterprise)

The software may be expanded in to other clinical systems in due course.

Product Compatibility

I^3 is currently compatible with the following diagnostic products:

- GE Healthcare Cardiosoft (v6.71 or later) CAM-USB ECG System
- GE Healthcare MAC600, MAC800, MAC1200, MAC1600 ECG machines when used with Cardiosoft software or SD card readers (when ECG machine supports PDF export to SD card)
- QRS Diagnostic Universal ECG cable with CardioView 5 software
- QRS Biolog ECG system with CardioView 5 software
- IEM Mobil-o-Graph Ambulatory Blood Pressure Monitor with HMS-CS software
- MedChip SpiroConnect Spirometer with SpiroConnect Data Manager software

The software may be expanded in to other diagnostic products in due course.

Installation

Initial installation is performed from CD-ROM. You must be logged on as a user with local administrator rights for the software to install successfully.

Insert the CD in to the CD-ROM drive. If the software installation does not begin automatically, browse to the CD-ROM drive and double click the I^3-Setup.exe to begin the installation process.

Follow the on-screen prompts until the installation completes. On completion there should be a desktop shortcut created.

Start the I^3 software from the desktop shortcut. The following screen will be seen:
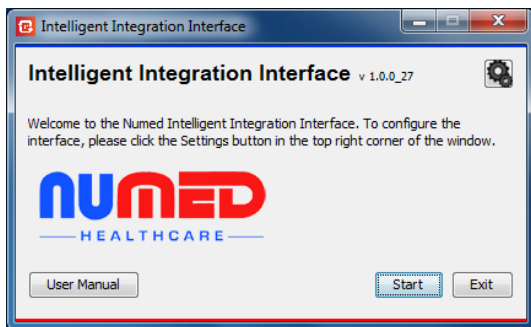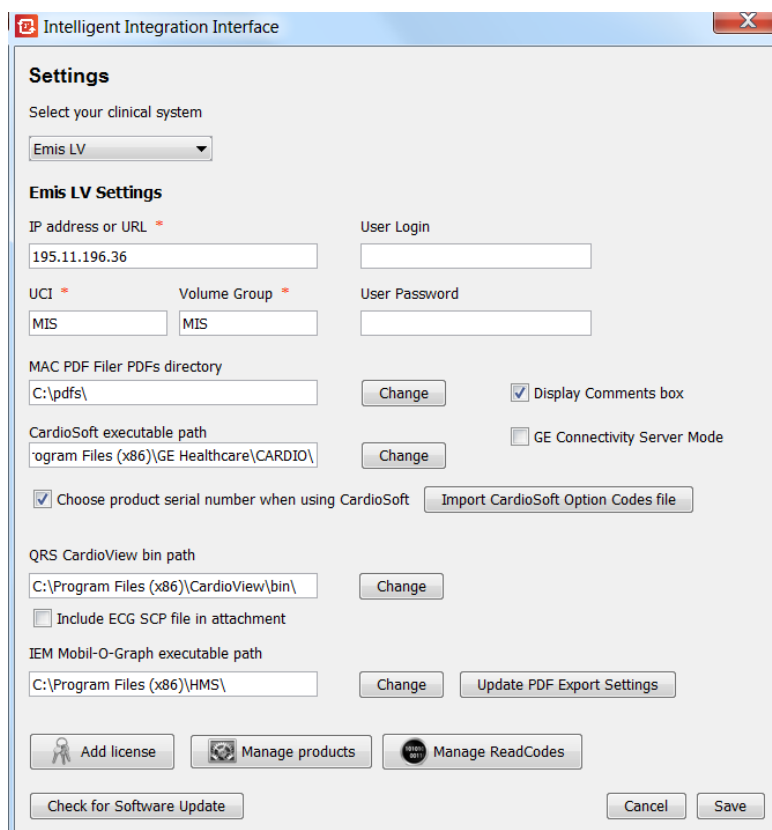
Initialisation with the Clinical System

EMIS LV Configuration

Start the I³ software from the desktop shortcut.

Click on the Settings icon in the top right corner of the first screen.   ⚙   The Settings screen will appear.

When the software is first installed, the clinical system can be selected from the dropdown box. Select **EMIS LV**. Once the clinical system has been selected, subsequent changes to the system type are protected by a password. The password changes on a daily basis. This is to ensure if the clinical system is altered, our technical support team can register the change of clinical system so the correct licence renewal can be applied. Please contact Numed Healthcare Technical Support on 0114 399 0010 for assistance with changing the clinical system.

Enter the EMIS LV server IP address or URL along with the database UCI and Volume Group. If you do not know these, please contact your local IT helpdesk or EMIS support.

The **User Login** and **User Password** will not normally be required as the software usually auto-detects the current EMIS user. You will be prompted to enter these when using the software should the need arise.

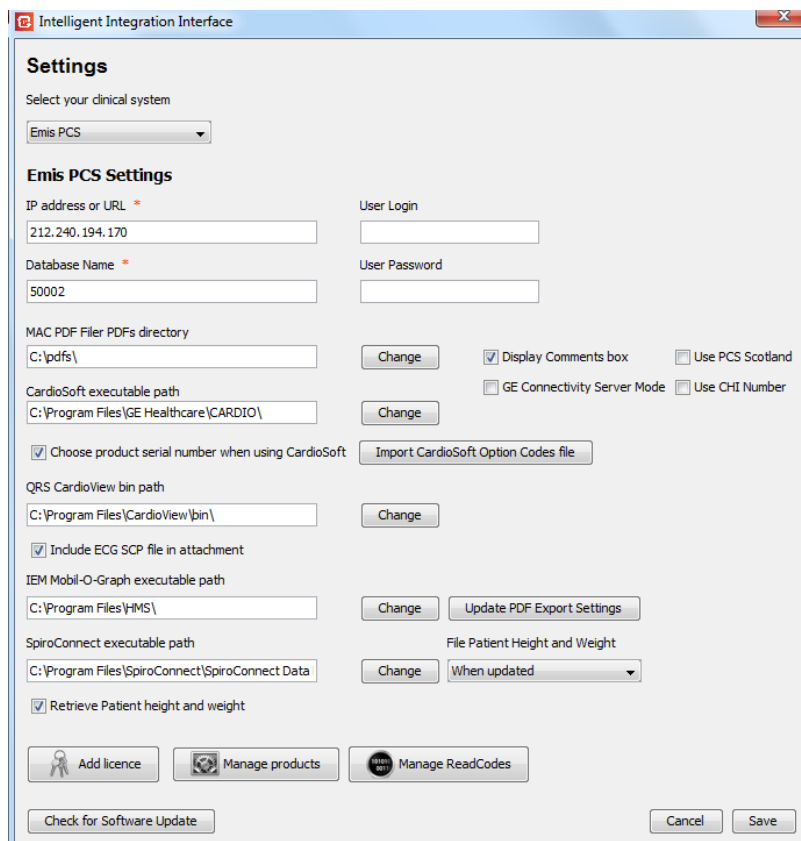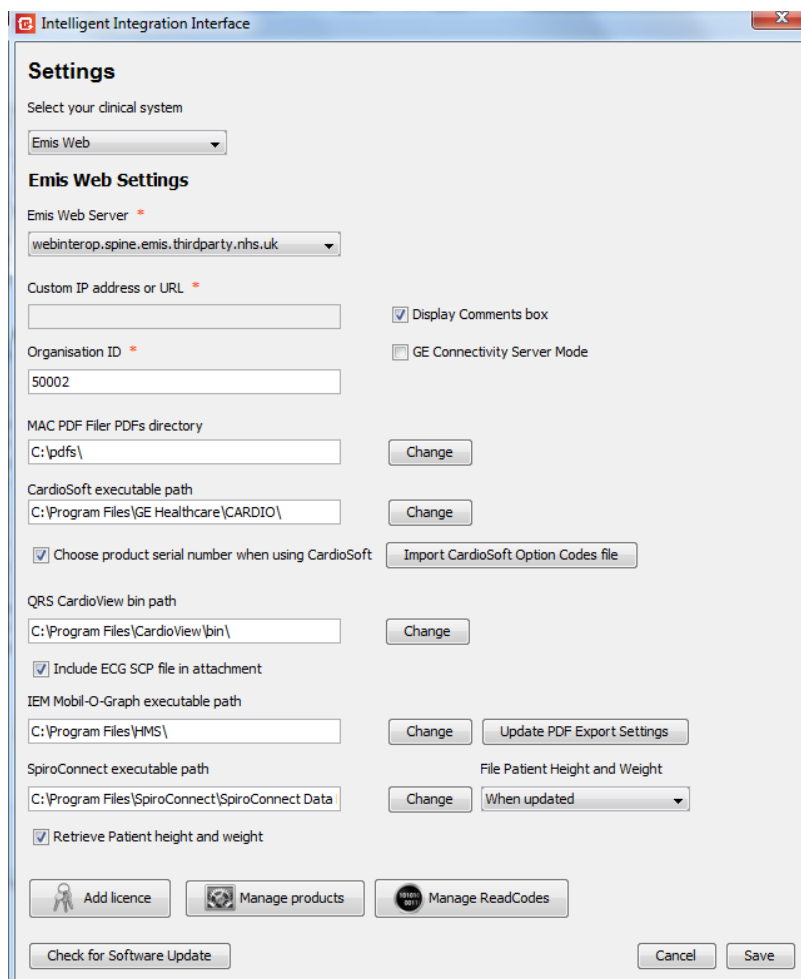**Note:** The Spirometry module is not available on EMIS LV.

See the **Configuration Settings Common to all Clinical Systems** section for details of other settings.

EMIS PCS Configuration

Start the I³ software from the desktop shortcut.

Click on the Settings icon in the top right corner of the first screen. The Settings screen will appear.

When the software is first installed, the clinical system can be selected from the dropdown box. Select **EMIS PCS**. Once the clinical system has been selected, subsequent changes to the system type are protected by a password. The password changes on a daily basis. This is to ensure if the clinical system is altered, our technical support team can register the change of clinical system so the correct licence renewal can be applied. Please contact Numed Healthcare Technical Support on 0114 399 0010 for assistance with changing the clinical system.

Enter the EMIS PCS server IP address or URL along with the database name. If you do not know these, please contact your local IT helpdesk or EMIS support.

For installations in Scotland, tick the **Use PCS Scotland** box. To use the Community Health Index number in lieu of the NHS number, click the **Use CHI Number** box.

The **User Login** and **User Password** will not normally be required as the software usually auto-detects the current EMIS user. You will be prompted to enter these when using the software should the need arise.

See the **Configuration Settings Common to all Clinical Systems** section for details of other settings.

EMIS WEB Configuration

Start the I³ software from the desktop shortcut.

Click on the Settings icon in the top right corner of the first screen.   The Settings screen will appear.

When the software is first installed, the clinical system can be selected from the dropdown box. Select **EMIS WEB**. Once the clinical system has been selected, subsequent changes to the system type are protected by a password. The password changes on a daily basis. This is to ensure if the clinical system is altered, our technical support team can register the change of clinical system so the correct licence renewal can be applied. Please contact Numed Healthcare Technical Support on 0114 399 0010 for assistance with changing the clinical system.

Select the EMIS WEB server address from the dropdown selection, or select Custom Server and enter the Server IP or URL. The Organisation ID must also be entered – this is usually the practice CDB number. If you do not know these, please contact your local IT helpdesk or EMIS support.
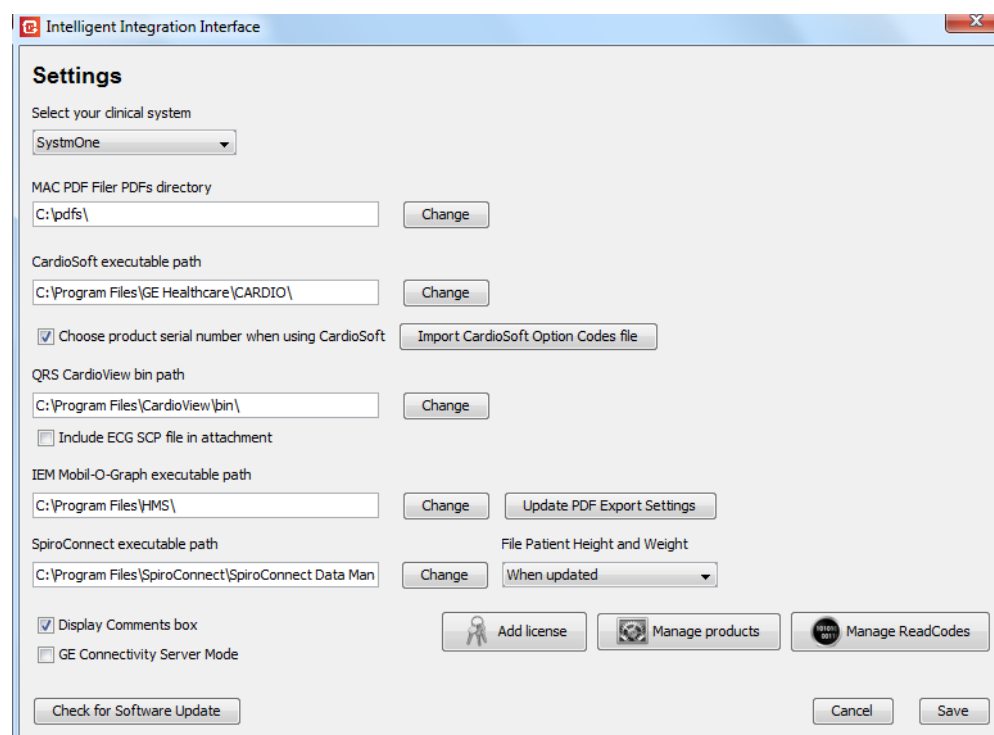
See the **Configuration Settings Common to all Clinical Systems** section for details of other settings.

TPP SystmOne Configuration

Start the I³ software from the desktop shortcut.

Click on the Settings icon in the top right corner of the first screen.   The Settings screen will appear.

When the software is first installed, the clinical system can be selected from the dropdown box. Select **SystmOne**. Once the clinical system has been selected, subsequent changes to the system type are protected by a password. The password changes on a daily basis. This is to ensure if the clinical system is altered, our technical support team can register the change of clinical system so the correct licence renewal can be applied. Please contact Numed Healthcare Technical Support on 0114 399 0010 for assistance with changing the clinical system.

See the **Configuration Settings Common to all Clinical Systems** section for details of other settings.
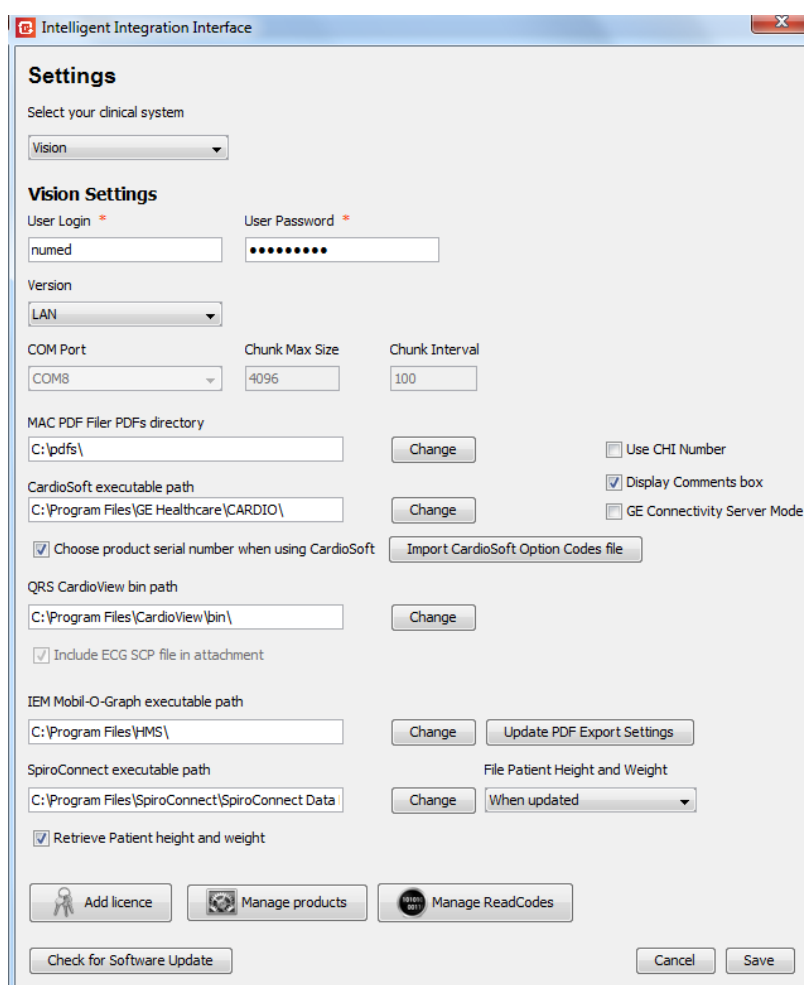
InPS Vision Configuration

Start the I³ software from the desktop shortcut.

Click on the Settings icon in the top right corner of the first screen. [gear icon] The Settings screen will appear.

When the software is first installed, the clinical system can be selected from the dropdown box. Select **Vision**. Once the clinical system has been selected, subsequent changes to the system type are protected by a password. The password changes on a daily basis. This is to ensure if the clinical system is altered, our technical support team can register the change of clinical system so the correct licence renewal can be applied. Please contact Numed Healthcare Technical Support on 0114 399 0010 for assistance with changing the clinical system.

A valid Vision username and password must be entered to allow I³ to gain access to the clinical system data.

The Vison version should then be selected – either LAN or Enterprise.

LAN should be selected for practices with their own server where the workstations are running the Vision client (fat client).

Enterprise should be selected for hosted systems including AEROS and VTS (Vision Terminal Services) systems where the Vision client runs on a remote desktop.

Systems running in Enterprise mode will require an additional software component to be installed on the server. This additional component, known as **Numed Enterprise Link**, is required to act as an interface between the Vision system running on the remote desktop and the medical equipment applications running on the local desktop.

Supply ► Installation ► Training ► Support
Alliance House, Roman Ridge Road, Sheffield S9 1GB • Tel: 0114 2433896 • Email: sales@numed.co.uk
www.numed.co.uk

Installation of the Numed Enterprise Link on the server is completed by InPS for AEROS systems and either InPS or a local IT service provider for VTS systems. This will be discussed and arranged at the time of purchase of the I^3 software. Customers migrating from LAN to Enterprise will need to contact Numed Technical Support ahead of the migration to facilitate enabling of the server side software.

Enterprise systems will also require separate installation of the com0com virtual com ports which are used to send and receive data securely to and from the remote desktop session. The installer for com0com is included on the I^3 installation CD. Numed Technical Support can assist with the set up and configuration of these ports if required.

When **Enterprise** is selected, some additional settings become enabled:
COM Port: this is the com0com port used by the I^3 software. The default is COM8. The Numed Enterprise Link software on the server must be set to use to paired com0com port. Numed Technical Support will assist with this if required.
Chunk Max Size and Chunk Interval: these settings control the data flow between I^3 and the remote desktop software. These setting should only be changed in consultation with Numed Technical Support.

To use the Community Health Index number in lieu of the NHS number, click the **Use CHI Number** box.

See the **Configuration Settings Common to all Clinical Systems** section for details of other settings.

Configuration Settings Common to all Clinical Systems

MAC PDF Filer PDFs Directory: If using a GE MAC ECG Machine, this should be set to the folder in which the PDF reports will be stored. This can either be a folder on the local drive, or a removable drive such as a card reader. If the removable drive location is used, the removable drive must be connected before starting the I³ software.

CardioSoft executable path: If using the GE CAM-USB ECG cable with CardioSoft software, this is the directory in which the CardioSoft software is installed.

Choose Product Serial Number when using CardioSoft: When enabled and CardioSoft CAM-USB is in use, a pop-up window will appear during the ECG acquisition process allowing selection of the product serial number from a list of those I³ is aware of. Selecting a serial number will automatically import the correct option codes to CardioSoft for the associated device. This permits easy device selection when multiple devices are in use in the same practice, or when loan equipment is issued during routine servicing or repair.

Import CardioSoft Option Codes File: This permits the text file containing the option codes for a particular CAM-USB device to be imported in to I³. Once imported, the device serial number will be available for selection when the 'Choose Product Serial Number' option described above is enabled. The imported text file name should be the serial number of the associated CAM-USB device, as this is what will appear in the dropdown selection box during use.

QRS CardioView Bin Path: If using the QRS Diagnostic Universal ECG Cable or Biolog ECG machine with CardioView 5 software, this is the directory in which the CardioView software bin folder resides.

Include ECG SCP File in attachment: If using the QRS Diagnostic Universal ECG Cable or Biolog ECG machine with CardioView 5 software, tick this box to upload the raw ECG file as well as the PDF report. The SCP file attachment requires CardioView to be installed to view the attachment. If this box is unticked, only the PDF report will be uploaded. **NOTE:** This option is not available on Vision systems.

IEM Mobil-o-Graph executable path: If using the IEM Mobil-o-Graph Ambulatory BP Monitor with HMS-CS software, this is the directory in which the HMS-CS software is installed.

Update PDF Export Settings: This button copies the most recent PDF report configuration from the HMS-CS software and uses it for the exported report filed to the clinical system. The required report settings should be made from within the HMS-CS software before clicking this button to replicate the report to the I³ software. The button will be greyed out if no report settings have yet been saved in the HMS software.

SpiroConnect executable path: If using the MedChip SpiroConnect Spirometer and Data Manager software, this is the directory in which the SpiroConnect Data Manager software is installed.

File Patient Height and Weight: (Applies to Spirometry module only). Three options are available:
> **Never:** The patient Height and Weight data will never be automatically selected by default for filing back to the clinical record.
> **Always:** The patient Height and Weight data will always be automatically selected by default for filing back to the clinical record.
> **When updated:** The patient Height and Weight data only be automatically selected for filing back to the clinical record if the values are updated on the patient details confirmation screen.

Retrieve Patient height and weight tick box (EMIS and Vision only): When enabled, I³ will attempt to retrieve previously recorded height and weight data from the patient record in the clinical system. However, on slow networks or if a patient has a large medical record, this type of data retrieval can be slow. De-selecting the tick box will speed up the retrieval of the patient data but will require the height and weight data to be entered manually in to the I³ patient data form. Patient Height and Weight is always retrieved when using SystmOne, assuming the data values have previously been recorded in the patient record.

The **Display Comments box** allows a comment to be optionally filed alongside the consultation. When ticked, a pop-up box will appear just before the results are filed to the clinical system. Applicable to CAM-USB, Universal ECG and Biolog only – other products have a comments box available at all times during the filing process.

GE Connectivity Server Mode: Tick this box when using a MAC ECG machine that uses the GE Connectivity Server to transfer data to the PC (currently only MAC600 and MAC2000). When ticked, I^3 will restart the Connectivity Server software each time it starts, which enhances data transfer reliability between the MAC and the PC.

Click **Save** to store the settings. If this is the first time the software has been used, it will now be necessary to enter the product licence keys. Please see the **Adding Product Licences** section.

Adding Product Licences

Before the software can be used, one or more product licences must be added to enable the link to the relevant products.

An individual licence code will enable one or more products depending on the code used.

Add a licence code by following the steps below:

1. Start the I³ software from the desktop shortcut

2. Click on the **Settings** button

3. Click the Add Licence button. The following screen will be shown:
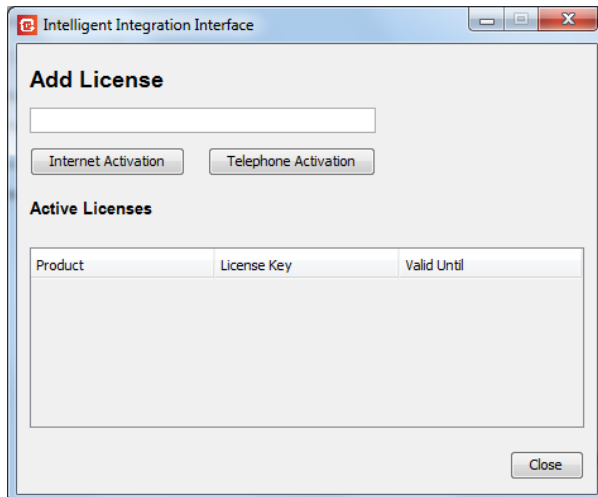
Type in the licence code provided with the software and click **Internet Activation**. If the licence code registers successfully a message will be shown:
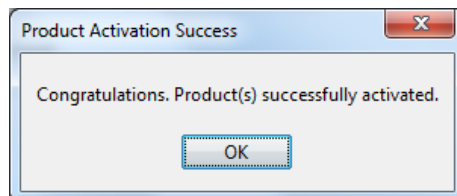
The enabled products, licence keys, and expiry dates will then be shown:
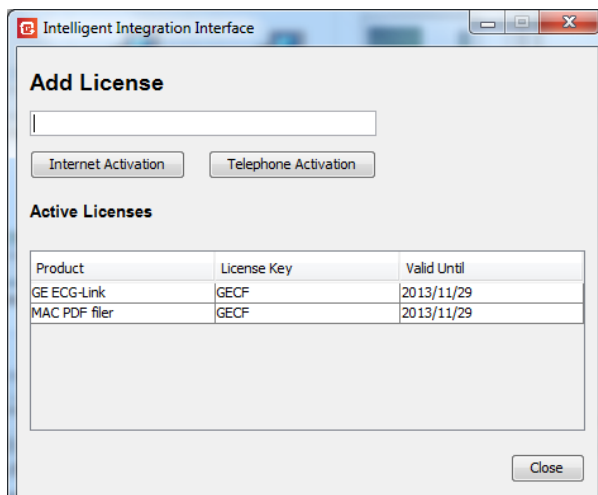
If Internet activation fails, double check the correct licence code has been entered. If problems persist please call Numed Healthcare Technical Support on **0114 399 0010** for assistance.

If telephone activation is required, the support technician will guide you through the process.

Important points:

- The licence codes supplied are **practice specific** and must not be used or shared at other sites (except branch sites that use the same clinical system database).

- If the licence code is used on an unauthorised site or is installed on a high volume of PCs, this may result in the licence code becoming locked, which will ultimately result in the software locking out the licensed product. For legitimate requirements for installation on a high number of PCs in the same practice, please contact Numed Technical Support for assistance.

- When the licence renewal date approaches, the software will display warnings of the imminent expiry. The software will continue to function normally until a few days after the expiry date. Renewal notices will be issued by post. When the licence is renewed, the software will automatically pick up the updated renewal date from the Internet server. If the software licence is not renewed, the software will cease to function a few days after the expiry date.

- If no licence codes are entered, or all licence codes have expired, the Add Licence screen will open as the software is started.

Managing Products

As product licences are added, the associated product links become enabled. However, for ease of use, it is possible to disable a licensed product from the user interface so only the products that are in regular daily use are available to be selected.

1. Start the I³ software from the desktop shortcut

2. Click on the **Settings** button

3. Click the **Manage Products** button

4. Tick the products to enable them on the user interface or remove the tick to make the product unavailable. If the product is greyed out, no licence is currently active for that product. See Adding Product Licences section.
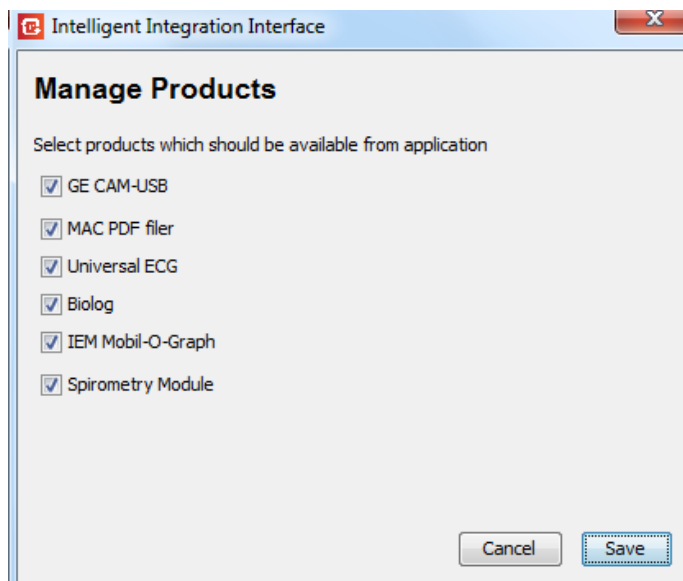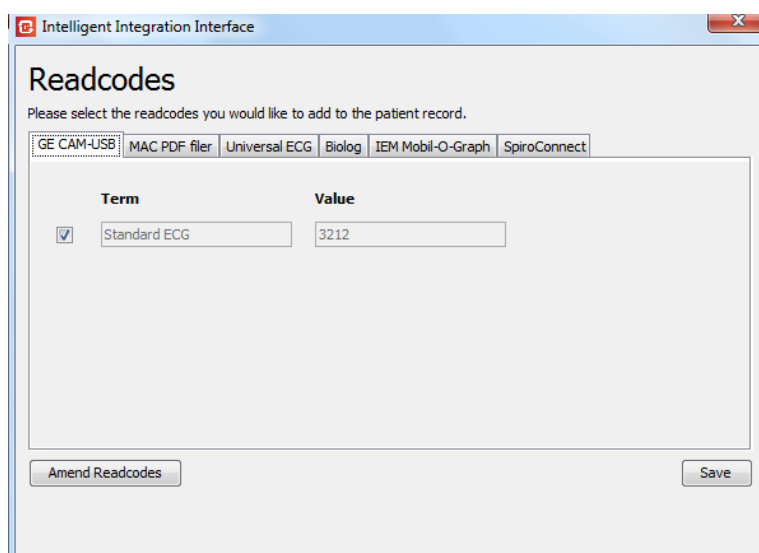
Managing Read Codes

Read Codes can be filed alongside the results of the test. Read code filing is enabled by default, but can be disabled if required. It is possible to choose which Read codes are available for filing from a selection of the data available from the diagnostic product.

The actual Read code(s) filed can be amended on written request. Please contact Numed Healthcare Technical Support for assistance on 0114 399 0010.

Follow the steps below to select which Read codes are filed.

1. Start the I^3 software from the desktop shortcut.

2. Click on the **Settings** button.

3. Click the **Manage Read Codes** button.

4. Click the tab of the product whose Read codes need amending. BP and Spirometry integration allow selection of individual Read codes for filing.

5. Use the tick boxes to select or deselect whether a Read code is available for filing. The SpiroConnect Spirometry software has a large number of Read codes available. It is not anticipated that all users will require the filing of all codes – users should select those they require from the list of available codes.

6. The actual Read code filed for a particular data value can be amended. However amending of Read codes is password protected and must be requested in writing. Numed Healthcare Technical Support will assist with this.
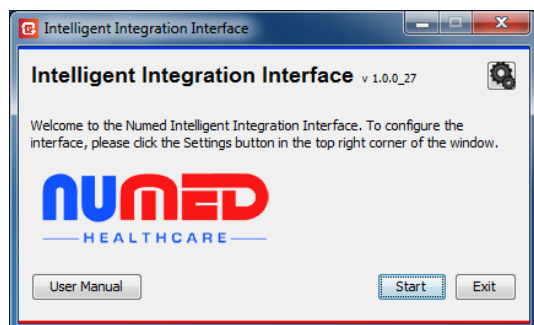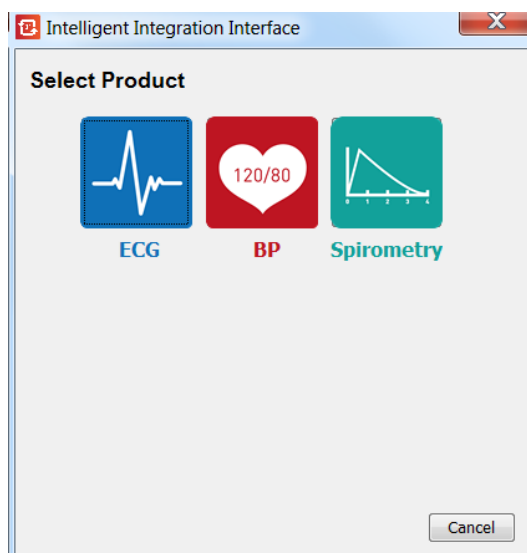
Using I³ with GE Healthcare CAM-USB and CardioSoft

To acquire an ECG from the GE Healthcare CAM-USB cable and store as a PDF in the patient's notes, follow the steps below:

1. Find and select the patient within the clinical system.
2. Start the I³ software from the desktop shortcut.
3. As the software starts, the following screen will be shown:

4. Click the **Start** button. The Select Product screen will appear.
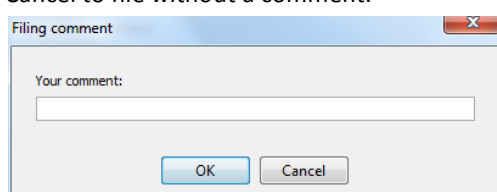
5. Click the **ECG** button. If multiple ECG products are enabled, a sub-menu will be shown – select the **GE CAM-USB** from the list of products and click the **Start** button.
6. If product serial number selection is enabled in the Settings, a drop-down box will appear allowing the serial number of the device in use to be chosen. Select the correct serial number and click OK.
7. After a second or two, the current patient's details should be shown in a window like the one below:
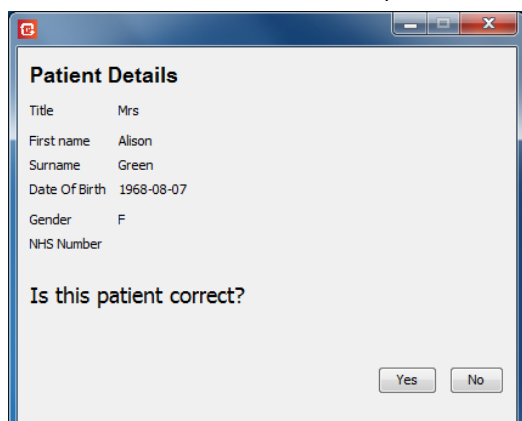
8. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

9. CardioSoft will initialise and the ECG monitoring screen should appear as shown below.
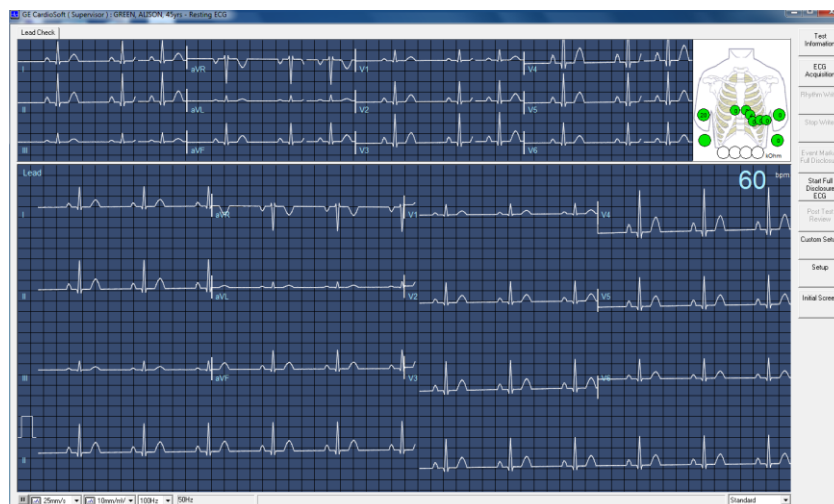
10. The connection indicator in the top right corner should show all ten leads as green, indicating good patient contact. If any of the lead positions show yellow or red, the lead contact requires attention.

11. When the quality of the ECG is satisfactory, click the **ECG Acquisition** button. There may be a delay of up to 10 seconds whilst the ECG is acquired. 'ECG Analysis' will appear briefly in the top section of the screen as the acquisition completes.

12. As the Acquisition completes, the **Post Test Review** button will become available – click this to review the Test Summary (Measurements, Automatic Interpretation etc.).

13. After reviewing the data, close the Post Review Window by clicking the cross in the top right corner of the window to exit CardioSoft.

14. If the 'Display Comments box' option is selected in the Settings menu, the following window will be seen to allow an optional comment to be filed alongside the consultation. Enter the comment in the box and click OK, or click Cancel to file without a comment.

15. After a few seconds, a message showing successful filing should be displayed. If filing is not successful, an error message will be shown.
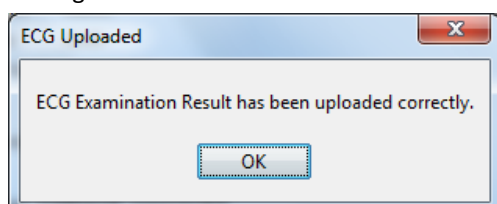
It is recommended the result is then viewed in the clinical system to verify correct filing before the patient leaves.

Using I³ with MAC PDF Filer

The MAC PDF Filer is designed to quickly and easily attach the PDF reports from the GE range of MAC ECG machines in to the clinical system. The process of actually transferring the PDFs from the MAC ECG machine to the PC varies between machines – please refer to the product manual for the machine in use.

Note: Due to limitations within the SystmOne interface, MAC PDF filer cannot perform the batch processing of ECG reports from different patients. When using SystmOne, PDF reports can only be filed to the currently loaded patient.

Once the PDFs have been transferred to the PC, follow the steps below to file the reports in to the patient record.

1. Start the I³ software from the desktop shortcut.
2. As the software starts, the following screen will be shown:
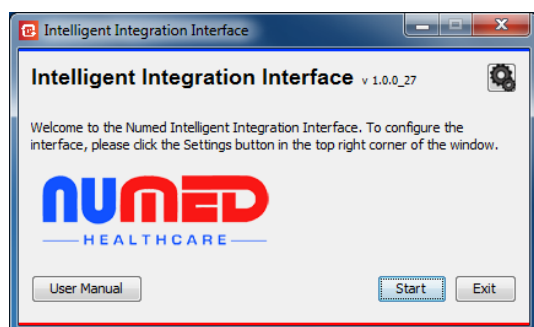
3. Click the **Start** button. The Select Product screen will appear.
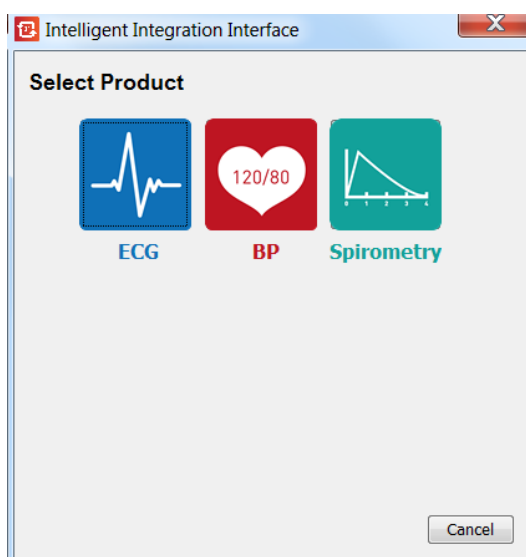
4. Select the **ECG** icon. If multiple ECG products are enabled, a sub-menu will be shown – select **MAC PDF filer** from the list of products and click the **Start** button.
5. A list of PDF files found in the PDF directory (specified in Settings) will be shown.
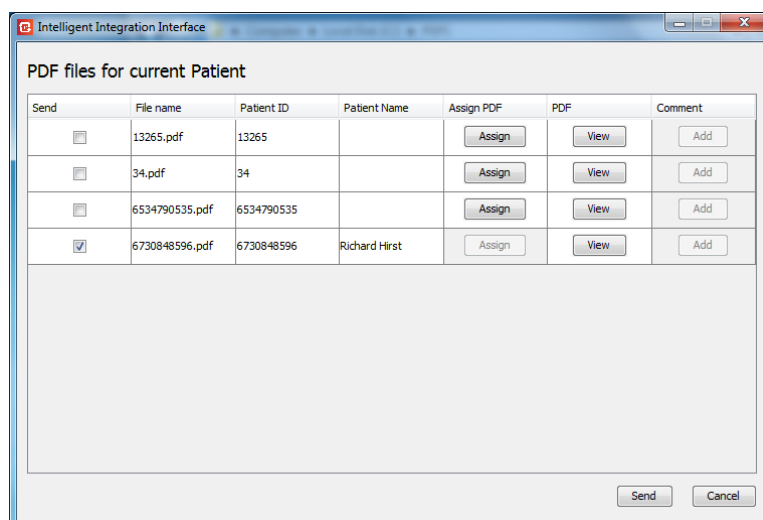
    EMIS users: I³ will attempt to look up the correct patient ID based on the filename of each of the PDFs.

    SystmOne users: I³ will try and match any PDFs whose filename matches the NHS number of the currently selected patient.

    Successfully matched patients will be shown in the list and selected ready for sending to the clinical system.

SystmOne users: Filenames that are not automatically matched to a patient can be manually associated with the currently loaded patient in SystmOne as follows:
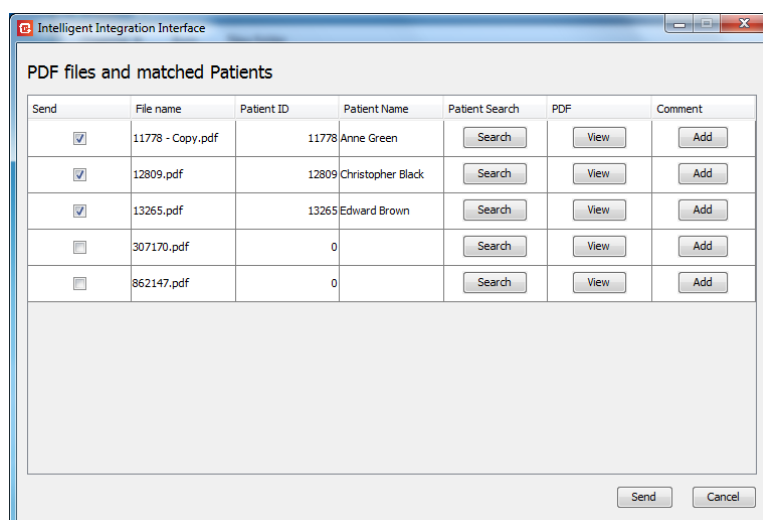
a.   If necessary, click the **View** button to see the details of the PDF report.

b.   To associate an unmatched PDF with the currently loaded patient in SystmOne, click the **Assign** button.

c.   PDF files for patients other than the currently loaded one will remain un-ticked. Once the current patient's reports are filed, change the patient in SystmOne and repeat the process.
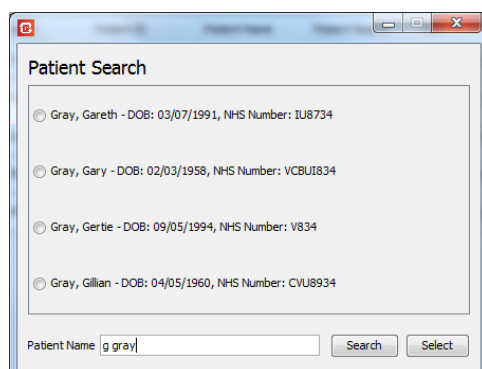
Go to step 6 below to continue the process.

EMIS & Vision users: Filenames that are not automatically matched to a patient can be manually associated with the correct patient as follows:

d.   If necessary, click the **View** button to see the details of the PDF report.

e.   Click the Search button and enter the name of the patient. The surname only or the first name **and** surname can be entered separated with a space. Either the full name(s) or the first few letters of the name(s) can be entered.
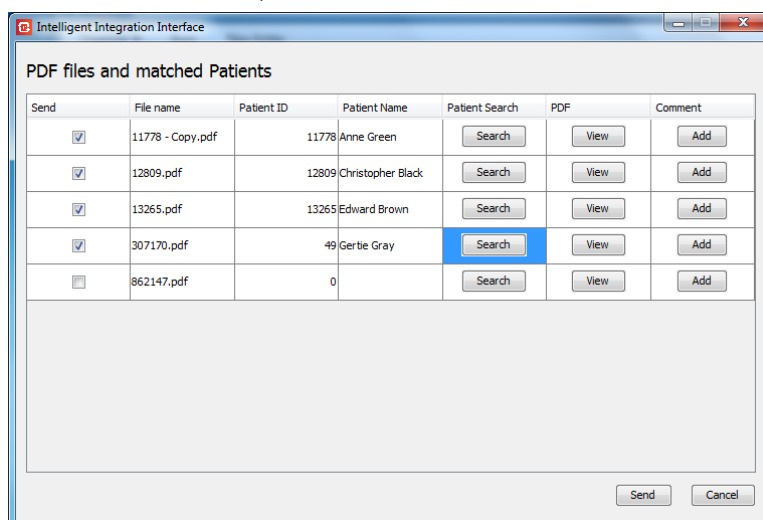
In this example 'g gray' has been entered in the patient name box, so the results have found anyone whose first name starts with a 'g' and whose surname also starts with 'gray', so surnames like 'grayson' and 'grayden' would be found as well 'gray'.

The search is not case sensitive.

f. Click on the patient required from the search results and click the **Select** button.

g. The selected patient will then be associated with the PDF file ready for sending to the clinical system. To remove the association, click the **Cancel** button at the bottom of the screen.

6. If the 'Display Comments box' option is selected in the Settings menu, click the **Add** button next to a PDF to allow an optional comment to be filed alongside the consultation. Enter the comment in the box and click OK, or click Cancel to file without a comment. (Note the Add button will be greyed out if the 'Display Comments box' is not selected in the Settings screen)

7. When all the required PDFs are associated with the correct patients, click the **Send** button.

The files with the Send tick box checked will be sent to the associated patient records. To prevent filing, remove the tick from the Send box next to the file.

Important Notes: see next page

Important Notes:

- PDF files sent to the clinical system will be deleted from the folder
- Conversely, PDF files not sent to the clinical system will remain in the folder and will appear in the list again the next time the software is started.
- PDFs that are automatically linked to a patient from the filename cannot be associated with a different patient. Once a patient is associated with a PDF file, the Search button becomes inactive.
- To edit a comment before filing, click the **Add** button again.
- To remove a PDF file from the list without sending to the clinical system, delete the PDF file from the folder in Windows Explorer.

Using I³ with QRS Diagnostic Universal ECG

To acquire an ECG from the QRS Diagnostic Universal ECG cable and store as a PDF in the patient's notes, follow the steps below:

1. Find and select the patient within the clinical system.
2. Start the I³ software from the desktop shortcut.
3. As the software starts, the following screen will be shown:
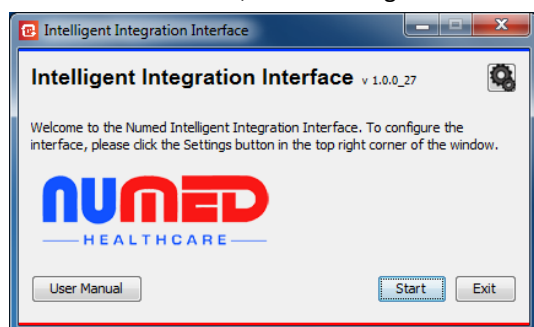
4. Click the **Start** button. The Select Product screen will appear.
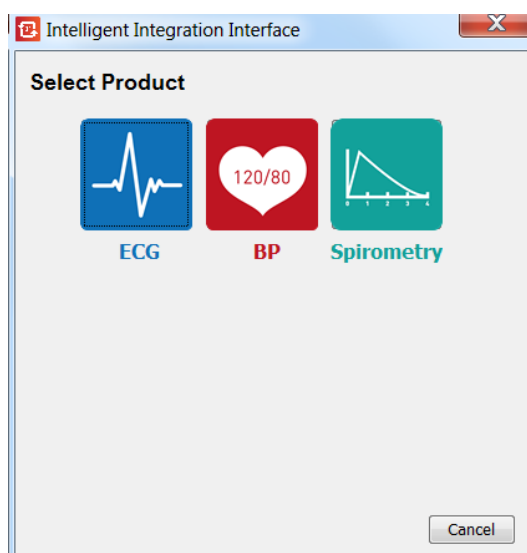
5. Select the **ECG** icon. If multiple ECG products are enabled, a sub-menu will be shown – select **Universal ECG** from the list of products and click the **Start** button.
6. After a second or two, the current patient's details should be shown in a window like the one below:
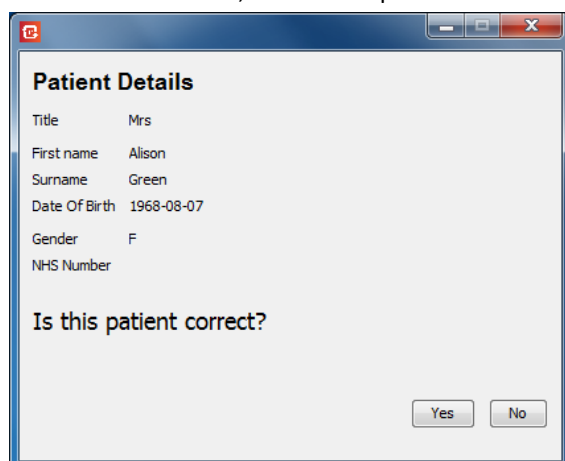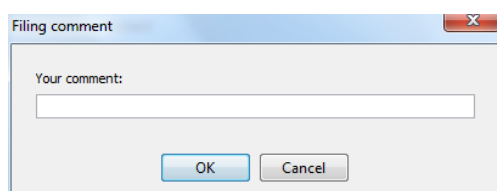
7. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

8. CardioView will initialise and the ECG monitoring screen should appear as shown below.
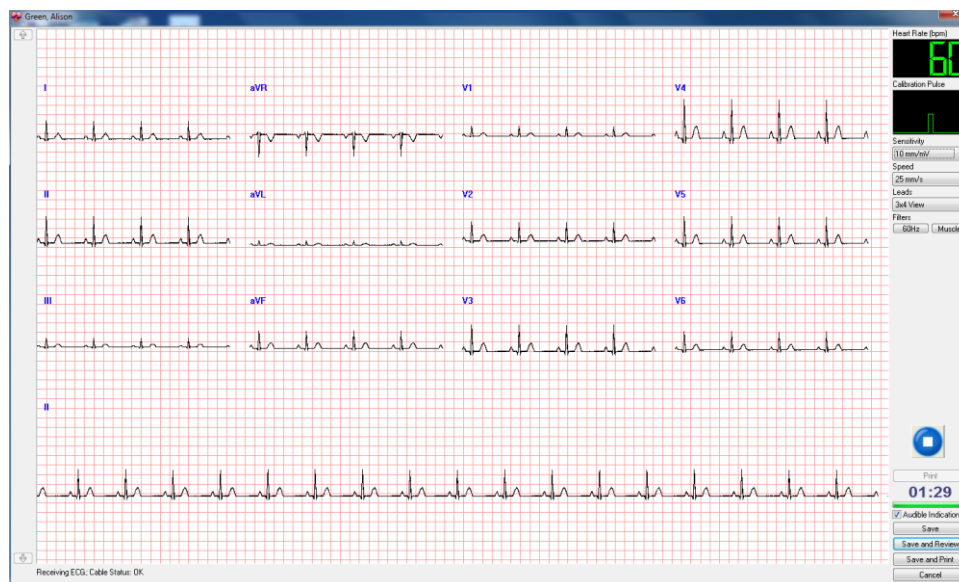
9. If any of the lead positions show the leads off indicator shown below, the lead contact requires attention.

10. When the quality of the ECG is satisfactory, click the **Save** button. There may be a delay of up to 10 seconds whilst the ECG is acquired. CardioView will exit as the acquisition completes.

11. If the 'Display Comments box' option is selected in the Settings menu, the following window will be seen to allow an optional comment to be filed alongside the consultation. Enter the comment in the box and click OK, or click Cancel to file without a comment.

12. After a few seconds, a message showing successful filing should be displayed. If filing is not successful, an error message will be shown.

It is recommended the result is then viewed in the clinical system to verify correct filing before the patient leaves.

Using I³ with QRS Diagnostic Biolog ECG

To transfer a recorded ECG from the QRS Diagnostic Biolog ECG machine and store as a PDF in the patient's notes, follow the steps below:

1. Find and select the patient within the clinical system.
2. Start the I³ software from the desktop shortcut.
3. As the software starts, the following screen will be shown:

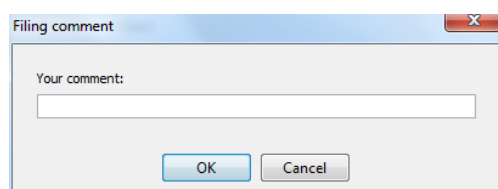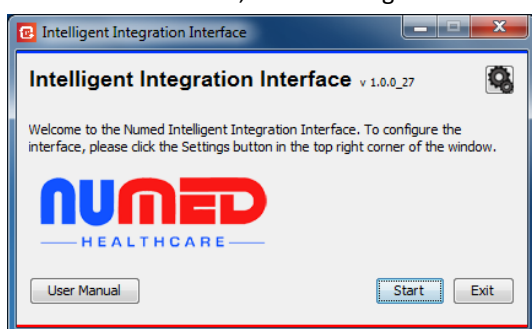4. Click the **Start** button. The Select Product screen will appear.

5. Select the **ECG** icon. If multiple ECG products are enabled, a sub-menu will be shown – select **Biolog** from the list of products and click the **Start** button.
6. After a second or two, the current patient's details should be shown in a window like the one below:
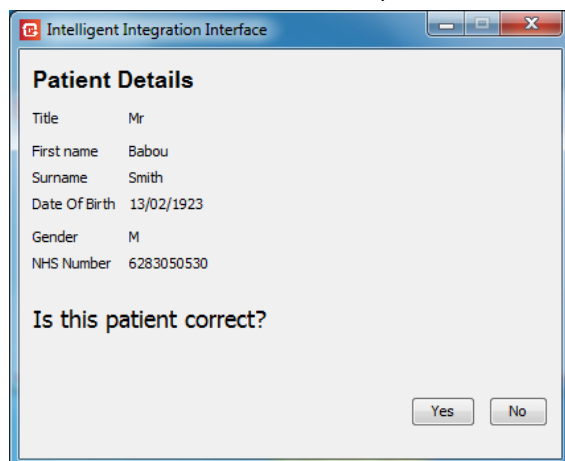
7. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

8. The following window will be seen. Power on the Biolog and connect to the computer. Select the communications port to which the Biolog is connected and click **OK**.
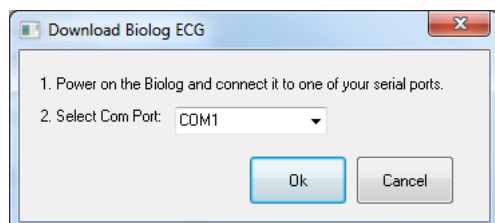
9. The data transfer should begin and a progress bar be shown. As the transfer completes, the ECG will be displayed in CardioView as seen below.
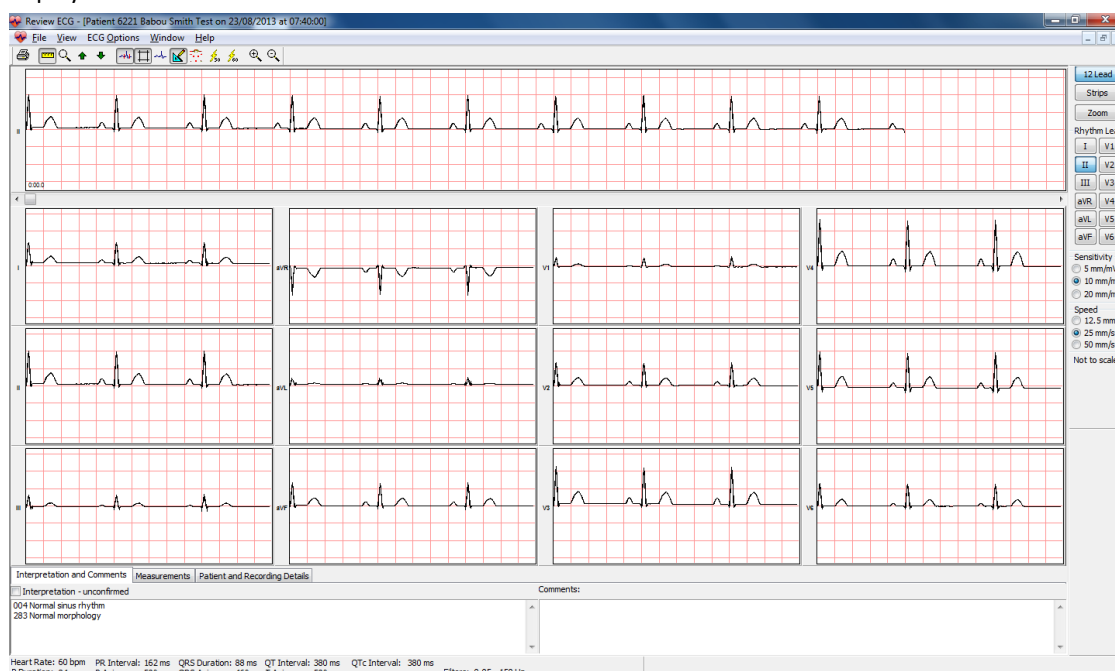
10. Close CardioView with the cross in the top right corner of the window.

11. If the 'Display Comments box' option is selected in the Settings menu, the following window will be seen to allow an optional comment to be filed alongside the consultation. Enter the comment in the box and click OK, or click Cancel to file without a comment.

12. After a few seconds, a message showing successful filing should be displayed. If filing is not successful, an error message will be shown.

ECG Uploaded

ECG Examination Result has been uploaded correctly.

OK

It is recommended the result is then viewed in the clinical system to verify correct filing before the patient leaves.

Using I³ with IEM Mobil-o-Graph Ambulatory BP Monitor

There are two distinct stages in using the Mobil-o-Graph Ambulatory Blood Pressure Monitoring system. The first is the preparation of the recorder before fitting to the patient and the second is the reading of the measurement data from the recorder after the patient returns.

Preparation of the Mobil-o-Graph

1. Find and select the patient within the clinical system.
2. Start the I³ software from the desktop shortcut.
3. As the software starts, the following screen will be shown:

4. Click the **Start** button. The Select Product screen will appear.
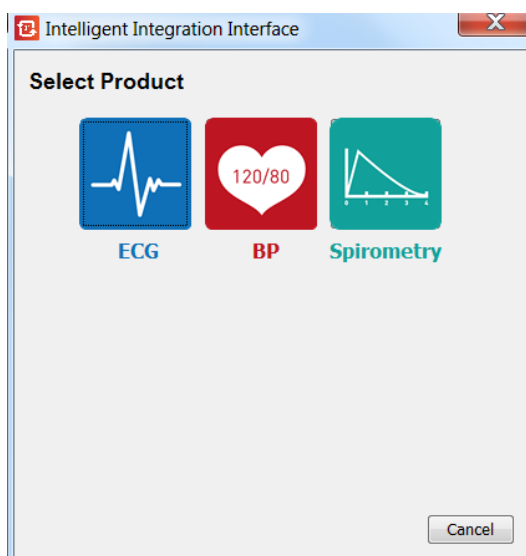
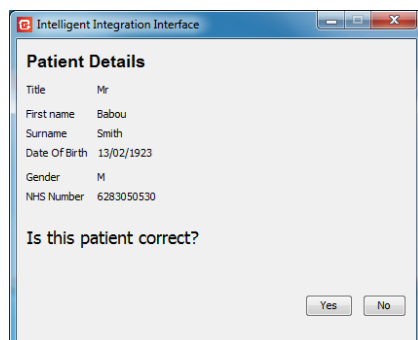5. Select the IEM Mobil-o-Graph from the list of products and click the **Start** button.
6. After a second or two, the following screen will appear asking to confirm whether you are preparing or reading data from the recorder. Choose '**Preparing**'.
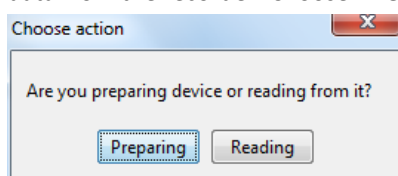
7. The current patient's details will then be shown in a window like the one below:
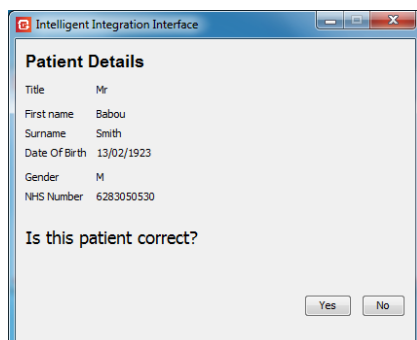
8. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

9. The HMS-CS BP software will open with the correct patient details loaded.

10. Connect the Mobil-o-Graph recorder to the PC and power on the device. CO should appear on the display to indicate communication mode.

11. Click on the Prepare Recorder icon

12. Select the protocol required and set the date time of the device.

13. Send the Patient ID and the protocol to the device.

14. Exit the HMS-CS BP software. You will be presented with a GDT export window as shown below. Select no GDT export and click OK.
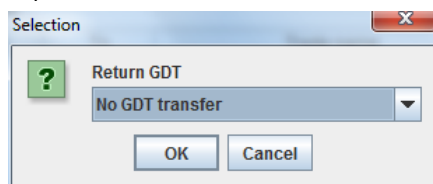
15. The preparation of the device is now complete. The device is ready for fitting to the patient and the first manual test performing to initiate the automatic readings.

Reading the Measurement Results from the Mobil-o-Graph

1. Find and select the patient within the clinical system.

2. Start the I³ software from the desktop shortcut.

3. As the software starts, the following screen will be shown:

4. Click the **Start** button. The Select Product screen will appear.
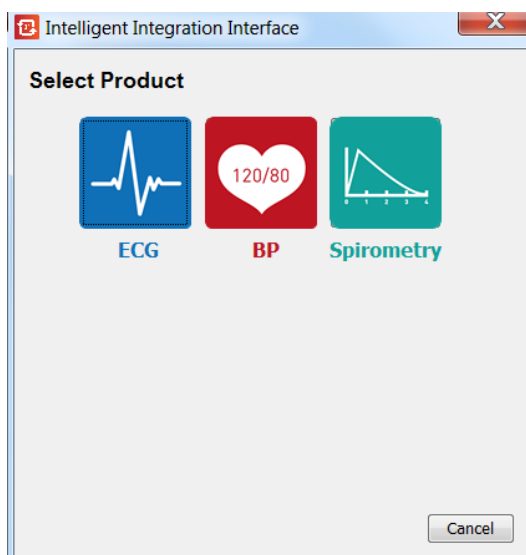
5. Click on the **BP** button from the list of products and click the **Start** button.

6. After a second or two, the following screen will appear asking to confirm whether you are preparing or reading data from the recorder. Choose '**Reading**'.
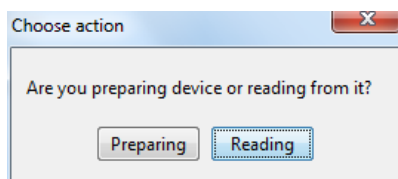
7. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

8. The current patient's details should be shown in a window like the one below:
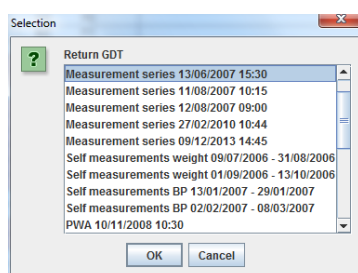
9. The HMS-CS BP software will open with the correct patient details loaded.

10. Connect the Mobil-o-Graph recorder to the PC and power on the device. CO should appear on the display to indicate communication mode.

11. Click on the Read Data from Recorder icon

12. When the transfer of the results is complete, exit the HMS-CS BP software.

13. If the newly downloaded results are selected these will be exported automatically. If any other previous results have been viewed, you will be offered a list of available results to export in a window like the one below. Click on the results you would like to export and click OK. **Note:** this window will only be seen if other historic results are viewed after the results are transferred from the Mobil-o-Graph.
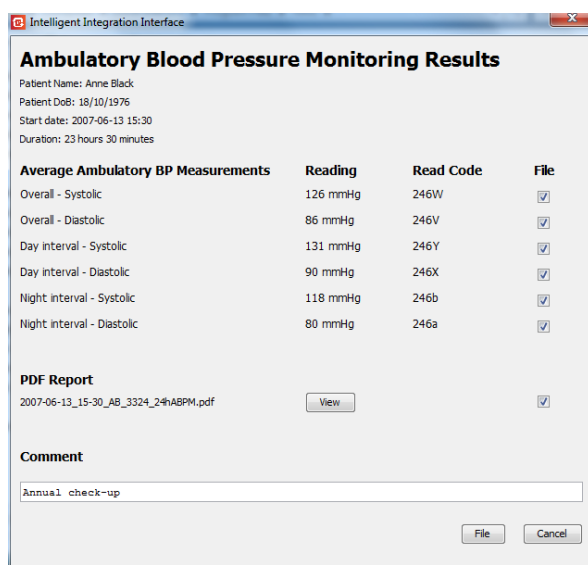
14. The integration software will display a list of available results and the Read codes under which these results will be filed. Any available results can be selected or deselected for filing. Also available for selection and previewing is the associated PDF report of the BP measurements. All available values will be selected by default unless altered in the program settings menu. A comment can also optionally be added, which will be filed alongside the PDF attachment.

15. Click the **File** button to begin the uploading of the results to the clinical system. This could take a few seconds depending upon network speed. A successful message will be displayed when the process completes successfully.
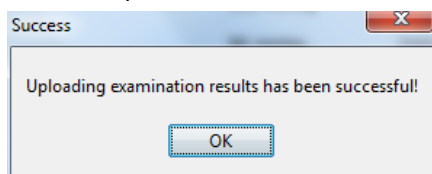

16. It is recommended the results are viewed in the clinical system to confirm success. Depending on the clinical system, this may require the patient record to be deselected and reselected in order to refresh the data.

Using I³ with MedChip SpiroConnect Spirometer

To perform a spirometry test using the MedChip SpiroConnect Spirometer and store a PDF report of the results in the patient's notes along with a selection of Read coded measurement data, follow the steps below.
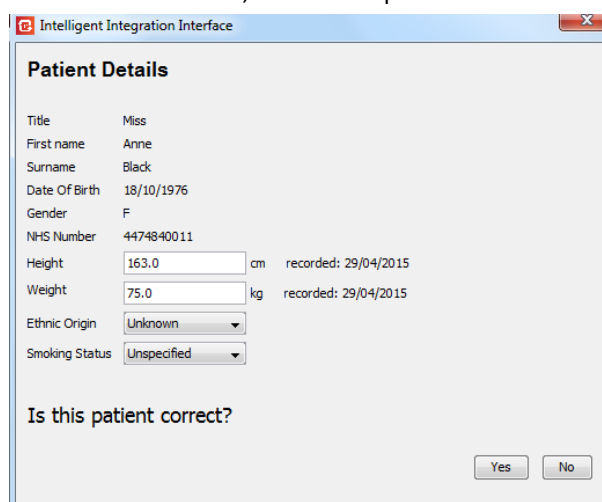
1. Find and select the patient within the clinical system.
2. Start the I³ software from the desktop shortcut.
3. As the software starts, the following screen will be shown:
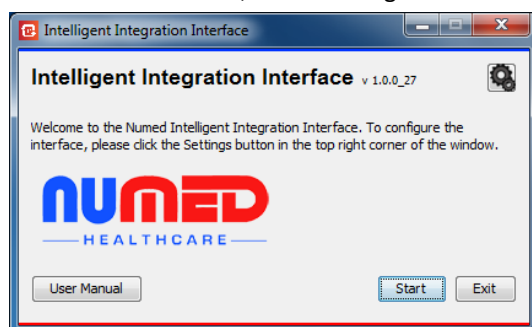

4. Click the **Start** button. The Select Product screen will appear.
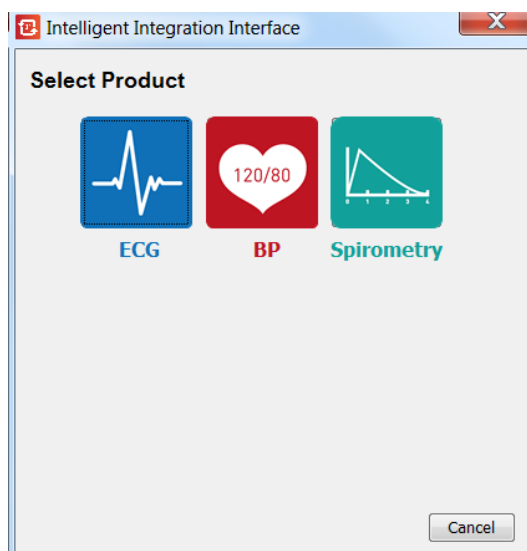
5. Select the **Spirometry** icon.
6. After a second or two, the current patient's details should be shown in a window like the one below:

7. Check the **Height** and **Weight** details are correct. If previously recorded in the clinical system, the most recent recordings will be displayed and the date those recordings were taken, provided this setting is enabled in the **Configuration Settings**

8. Select the **Ethnicity** and the **Smoking Status** of the patient. Depending on the clinical system in use, these may be retrieved from the clinical system.

9. Click **Yes** to confirm the patient details are correct. If the patient details are not correct click **No** and ensure you only have one copy of the clinical system software open.

10. As the Spirometry software opens, select the test required.
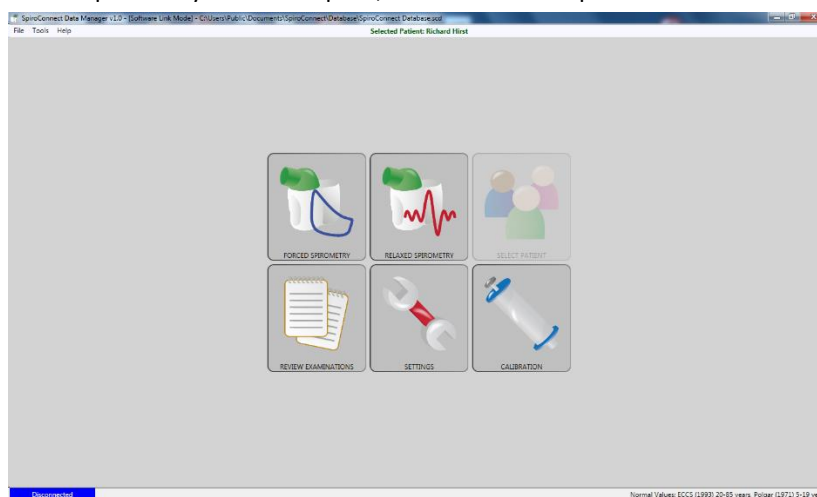
11. Perform the tests required. When complete, exit the Spirometry software by clicking the cross in the top right corner.

12. The following message will be displayed asking if the results should be exported. Answer 'Yes'.
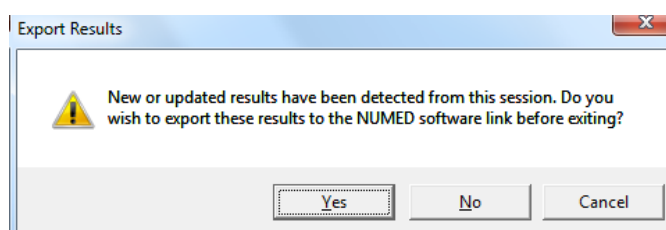
13. A list of the results available for filing to the patient record in the clinical system will then be displayed (see next page). It may be necessary to scroll to see all the results.

   To prevent the filing of any particular data, de-select the relevant tick box.

   Data showing as **n/a** is not available to be filed in the clinical system in use. Data with a greyed out tick box is either not available in the clinical system in use, or has not had the data value measured by the Spirometry software.

   Optional additional codes are available for user selection, such as COPD and Asthma monitoring codes.
   To file a COPD Read code for **Oxygen Saturation at Periphery**, the percent oxygen saturation value must first be entered in the box provided.

The PDF report can be previewed by clicking the **View** button. The PDF must be closed before the data can be filed.

A comment can be added to be filed alongside the attachment by typing in the **Comment** box.

If no Post BD test data is detected, the user is given the option of filing the results immediately or filing later after the Post BD tests are performed. This permits the full set of readings to be filed in to one entry in the patient record. Post BD readings <u>must</u> be performed **within 1 hour** of the forced spirometry tests for the results to be combined.

If Post BD data is detected, then only the **File** and **Cancel** options are available. Click the **File** button to send all selected results to the patient record in the clinical system. A confirmation message will be displayed upon successful filing. The length of time taken to file the results will vary depending on the clinical system in use, the speed of the network and the number of data values selected for filing (the more data values, the longer it will to file).

Please note that any Read codes that are disabled in the **Configuration Settings** will not be shown on the Test Results screen.
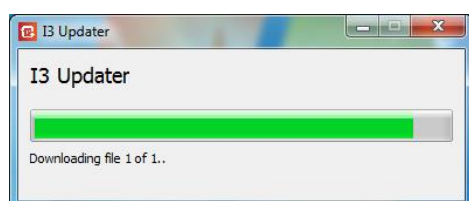
Software Updates

Software updates are automatically detected and installed over the Internet when the software is started. If the update server cannot be contacted, a message will be displayed notifying of this.
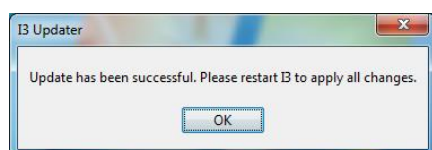
If a software update is detected, the following message will be seen.
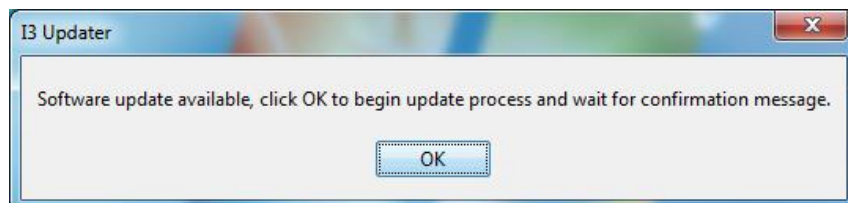
Click **OK**. The update will begin and a progress bar will be shown.

As the update completes, the following message should be shown:

Click **OK** and start the software again to apply the update. In the event of a software update failure message, please contact Numed Healthcare Technical Support for advice and assistance.

Help and Support

Numed Healthcare offers assistance with product training and technical support.

For **training advice**, please contact:
>   0114 243 3896 or training@numed.co.uk
>   Office hours: 9am – 5pm, Monday – Friday

For **technical support**, please contact:
>   0114 399 0010 or support@numed.co.uk
>   Office hours: 8am – 5:30pm, Monday – Friday